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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/895,178	07/02/2001	Keizoh Kawaguchi	110006	8755

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EXAMINER

DROESCH, KRISTEN L

ART UNIT	PAPER NUMBER
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3762

DATE MAILED: 10/06/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/895,178

Applicant(s)

KAWAGUCHI, KEIZOH

Examiner

Kristen L Droesch

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 8 is/are rejected.
- 7) ☒ Claim(s) 4-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Groch et al. (4,549,552) in view of Wang et al. (5,309,917). Groch et al shows a heart sound microphone (24,26,28), a squaring means (66); and a start - point determining means for determining a start point of the first heart sound based on the squared amplitude being greater than a prescribed threshold value (Col. 7, lines 31-40; Col. 21, lines 46-60). Although Groch et al fails to show smoothing means, attention is directed to Wang et al. which shows a signal processing device that includes smoothing means, in combination with squaring means and start-point determining means (Col. 12, line 19-Col. 13, line 30). Wang et al. teaches that differentiating and squaring the resultant differential signal extracts and emphasizes changes in the slope of the signal (Abs.; Col. 12, lines 54-56). Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the device of Groch et al. with means for differentiating the signal in combination with squaring means as taught by Wang et al. in order to extract and emphasize changes in the slope of the signal.

Regarding claim 2, Groch et al. further shows a high pass filter (40) (Col. 6, lines 49-62).

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With respect to claim 3, Groch et al. further shows a electrocardiograph which includes a plurality of electrode adapted to be worn at a plurality of locations on the subject (Col. 9, line 67-Col. 10, line 4; Col. 8, lines 11-14; Col. 10, line 60-Col. 11, line 11; Col. 12, lines 31-42).

Regarding claim 8, Wang et al. shows the squaring means squares an amplitude of each of a plurality of data points on the smoothed waveform with respect to a baseline of the signal (Col. 12, line 19-Col. 13, line 30).

Allowable Subject Matter

3. Claims 4-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record fails to teach or suggest a system including a the heart sound detector of clam 1 in combination a pulse-wave-propagation-velocity-relating-information obtaining means for obtaining pulse wave propagation velocity information based on a time of the *start point* of the first heart sound detected via the heart sound detecting apparatus and a time when a *rising point* of a pulse wave is detected by a pulse wave detecting device. Gruebel et al. (5,234,997) shows detecting the pulse wave velocity based on timing of the first heart sound to the arrival of the pulse at the peripheral artery. However, Gruebel et al. fails to specifically teach determining the pulse wave velocity based on the start point of the first heart sound and a rising point of a pulse wave.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takahashi et al (5,293,874) shows measuring the pulse wave velocity utilizing heart sounds and two pulse wave detectors. However, Takahashi et al. shows the first heart sound is

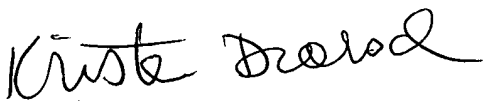
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utilized to begin a recording period of the pulse waves detected by the two detectors. Nuome (6,315,734) shows measuring the pulse wave velocity based on timing of the first heart sound and the dichrotic notch of the pulse wave. Oka (2002/0035337) shows measuring the pulse wave velocity based on timing of the start point of the second heart sound and the rising point of the pulse wave.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kristen L Droesch whose telephone number is 703-605-1185. The examiner can normally be reached on M-F, 10:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angie Sykes can be reached on 703-308-5181. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.


kld


KENNEDY SCHAEZLE
PRIMARY EXAMINER
9-29-03